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 13 BARRY LAMAR BONDS

14 **UNITED STATES DISTRICT COURT**
 15 **NORTHERN DISTRICT OF CALIFORNIA**
 16 **SAN FRANCISCO DIVISION**

17 UNITED STATES OF AMERICA,)	Case No. CR 07 0732 SI
)	
18 Plaintiff,)	DEFENDANT'S MOTION TO STRIKE
)	EXPERT AND LAY TESTIMONY
19 vs.)	REGARDING PURPORTED SIDE
)	EFFECTS OF STEROIDS AND HGH
20 BARRY LAMAR BONDS,)	
)	Date: TBA
21 Defendant.)	Time: TBA
)	Judge: The Honorable Susan Illston

22 **INTRODUCTION**

23
 24 Prior to trial, the defense moved in limine to exclude expert and lay testimony on the side
 25 effects of anabolic steroids and human growth hormone (hereafter "HGH") on the ground that
 26 either (a) the occurrence of such side effects had not been established scientifically; (b) there was
 27 inadequate evidence that any such side effect had been observed in Mr. Bonds; or (c) both (a) and
 28 (b). In its Order of February 19, 2009 (Dkt. 137, hereafter "Order"), the Court denied

1 defendant's motion.

2 Initially, the Court summarized the proposed expert testimony of government witness
3 Doctor Larry Bowers as follows:

4 Dr. Bowers opines that anabolic steroids can cause the following effects:

5 increased hair growth on the trunk and extremities (primarily in
6 women), male pattern baldness, the development of acne,
7 particularly on the upper back, decrease in testicular size, increased
8 aggressiveness, feelings of invincibility, "roid rage," weakening of
9 the heart, hypertension, injury to the liver and possible links to
10 prostate cancer. *See* Gov't Supp. Opp., Supp. Decl. of Larry D.
11 Bowers ¶ 3 ("Bowers Decl. II"). As for HGH, Dr. Bowers opines
12 that side effects can include "an increase in the size of one's head
13 or skull, jaw, hands and fingers, and feet and toes, as well as
14 improved eyesight." *Id.* ¶ 5

15 (Order, at 17).

16 As to the admissibility of Doctor Bowers's testimony, the Court ruled: "Dr. Bowers'
17 professional experience in the field of athletic drug testing and his peer-reviewed scholarly work
18 satisfy the Court that it may rely on Dr. Bowers' characterization of the literature on the side
19 effects of anabolic steroids and HGH. Accordingly, the Court finds that Dr. Bowers' opinion is
20 sufficiently reliable to be admitted under Rule 702." (*Id.*, at 19)

21 The Court then turned to the defendant's claim that "Dr. Bowers' testimony should be
22 excluded because it is not relevant, [as] there is no 'fit' between Dr. Bowers' proffered testimony
23 and the facts at issue in this case." The Court "disagree[d]," ruling that:

24 Dr. Bowers' testimony will help the jury understand the typical
25 effects of using anabolic steroids and HGH. If defendant developed
26 any of the symptoms described by Dr. Bowers during the period in
27 question, such evidence would be probative of whether defendant
28 had been exposed to such substances. This evidence could, in turn,
be probative evidence concerning the charges in the indictment.
The Court will therefore require an offer of proof from the
government before Dr. Bowers testifies establishing that there is or
will be evidence in the record that defendant developed some of
the symptoms Dr. Bowers will describe. Subject to an adequate
offer of proof, the Court finds that Dr. Bowers's proffered
testimony is relevant.

29 (*Id.*, at 19).

30 The admission of the expert and lay testimony on side effects was thus doubly
31 conditional. First, the expert testimony that side effects exist was conditioned on an adequate

1 scientific showing under *Daubert* that anabolic steroids and HGH cause such side effects.
2 *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 590 (1993) (“[I]n order to qualify
3 as ‘scientific knowledge,’ an inference or assertion must be derived by the scientific method.
4 Proposed testimony must be supported by appropriate validation — *i.e.*, “good grounds,” based
5 on what is known. In short, the requirement that an expert's testimony pertain to ‘scientific
6 knowledge’ establishes a standard of evidentiary reliability.”) Second, even if such a scientific
7 basis could be laid as to a given side effect, the admissibility of testimony concerning that
8 specific effect was further conditioned on a showing that the effect in question was relevant to
9 this case — that is, proof that Mr. Bonds had exhibited that particular side effect.

10 Defendant Bonds does not dispute that the necessary two-pronged showing for
11 admissibility has been established as to certain side effects of anabolic steroids. For example,
12 Doctor Bowers’s testimony that the use of anabolic steroids can be accompanied by a gain in lean
13 muscle mass, acne, hair loss, sexual dysfunction, mood changes, or bloating has been supported
14 by lay testimony that Mr. Bonds exhibited those characteristics. Of course, the credibility of that
15 lay testimony has been severely challenged, and proof has been admitted of alternate
16 explanations of all of those side effects — *viz.*, they can equally be caused by cortical steroids,
17 which Mr. Bonds was taking at all of the times in question, or, regarding an increase in lean
18 muscle mass, by the sort of intense training with heavy weights Mr. Bonds undertook. Given the
19 conflict in proof, whether the evidence concerning these side effects has any probative value in
20 proving the charges in the indictment is a question for the jury.

21 But evidence offered to prove a given factual proposition is only admissible if it passes
22 muster under Rule 104(b), under which the court “examines all the evidence in the case and
23 decides whether the jury could reasonably find the conditional fact ... by a preponderance of the
24 evidence.” *Huddleston v. United States*, 485 U.S. 681, 690 (1988). As to one alleged side effect
25 of anabolic steroids, the necessary “fit” between expert and lay testimony which would permit a
26 jury to reasonably find that Mr. Bonds suffered that side effect due to steroid use is wholly
27 absent. That side effect is testicular shrinkage. For that reason, Mr. Bonds moves below to strike
28 all expert and lay testimony on that subject.

Furthermore, Doctor Bowers's own testimony demonstrates that there is simply no scientific basis whatsoever for the proposition that the side effects of the use of exogenous HGH "can include 'an increase in the size of one's head or skull, jaw, hands and fingers, and feet and toes, as well as improved eyesight.' *Id.* ¶ 5." (Order, at 17) Likewise, there is no lay testimony in the record that is consistent with the conclusion that Mr. Bonds experienced an unusual increase in any of his body parts during the relevant time in question. For that reason, all expert and lay testimony dealing with the supposed side effects of HGH must be stricken from the record.

I. THE RECORD DOES NOT CONTAIN EVIDENCE THAT WOULD PERMIT A JURY TO REASONABLY CONCLUDE THAT MR. BONDS SUFFERED TESTICULAR SHRINKAGE DUE TO THE USE OF ANABOLIC STEROIDS

At trial, Doctor Bowers testified that a study of heavy steroids users produced data that steroids users experience a shrinkage on average of approximately one quarter inch in the size of their testes; that such shrinkage can be measured by a medical device called an orchidometer; and that steroid use does not cause a shrinkage in the size of the scrotum. (RT 707)¹ While Ms. Bell claimed in her testimony that she did observe a change in Mr. Bonds' testicles during the course of their relationship, she admitted that her sworn grand jury testimony that his testicles shrunk to half their size was not true. (RT 965-966)

The expert testimony offered by Doctor Bowers does not support the government's pretrial contention that the effect of steroid use, even heavy steroid use, produces changes in the size of the testes that can be observed visually by a non-professional. Given that the scrotum does not shrink, detection of an average shrinkage of .25 inches in the testes would require measurement by a scientific or medical instrument. The promised scientific predicate for the admission of Ms. Bell's testimony thus has not been introduced, and her testimony concerning her observation of Mr. Bonds' testes should thus be stricken as irrelevant for that reason alone. FRE 401 (To be relevant, evidence must render fact in issue more probable or less probable than it would be without the evidence).

¹ The relevant pages of the Reporter's Transcript are attached as Exhibit A.

1 Additionally, Ms. Bell has now admitted that she gave false testimony to the grand jury
 2 that she had observed Mr. Bonds's testes shrunk to half their previous size. (RT 965-966) That
 3 admission marks her statement to Playboy that the defendant's testicles had "shriveled up" (RT
 4 966) as false as well. These admissions of falsity during Ms. Bell's testimony on Monday,
 5 March 28th were no doubt prompted by the fact that Doctor Bowers's testimony three days earlier
 6 exposed Ms. Bell's prior descriptions of testicular shrinkage as pure fiction. Defendant submits
 7 that this Court likely would have granted the defense motion in limine on the subject of testes if
 8 it had known when making that ruling that Ms. Bell had testified falsely on this subject while
 9 under oath before the grand jury.

10 Finally, the subject of the size of the defendant's testes is obviously one which some, if
 11 not many, jurors find distasteful, embarrassing, and distracting. The topic has occupied a
 12 considerable amount of the Court's time, and more time and attention necessarily will be spent
 13 on the subject if it remains an issue in the case. For these reasons, the testimony of Doctor
 14 Bowers and Ms. Bell concerning testicular size and shrinkage should be stricken under FRE 402
 15 and 403.

16 **I. THE RECORD DOES NOT CONTAIN EVIDENCE THAT WOULD PERMIT A**
 17 **JURY TO REASONABLY CONCLUDE THAT MR. BONDS SUFFERED SIDE**
 18 **EFFECTS FROM TAKING EXOGENOUS HGH**

19 **A. Statement of Facts**

20 **1. The Expert Testimony**

21 During his direct testimony, when asked about the side effects of human growth hormone,
 22 Doctor Bowers made clear that his scientific data would concern not the effects of exogenous
 23 human growth hormone, but "the disease that's associated with excess human growth hormone."
 24 (RT 650). Bowers then discussed acromegaly, a disease involving the enlargement of the
 25 extremities due to excess human growth hormone. (RT 651) The symptoms associated with this
 26 disease, which is caused by a pituitary tumor (RT 651, 659, 661, 713), include an increase in
 27 head, hand, and foot size. (RT 651) The bony part of the head grows due to the disease. (RT
 28 652). Bowers acknowledged that "exogenous human growth hormone plays no part in the
 disorder of acromegaly" (RT 660), but expressed a "concern" that there could be "the same

1 effect, even though the source of the growth hormone is different....” (RT 655-656)

2 Bowers conceded that “[t]here really aren’t any studies per se on the side effects of large
3 doses” of HGH. (RT 655) While there is a single peer-reviewed paper by Melman that expressed
4 the “concern” testified to by Bowers, there is no study that links the use of exogenous HGH to
5 the symptoms of acromegaly. (RT 661-663) Bowers acknowledged that there are no medical
6 texts which discuss a “concern or theory that exogenous human growth hormone can cause the
7 symptoms associated with acromegaly.” (RT 664)

8 Later during his cross-examination, Bowers conceded that he could not opine whether it
9 was “probable” that someone who took exogenous human growth hormone would have his head
10 get bigger, nor could he say what amount of exogenous human growth hormone might cause an
11 increase in head size. (RT 697). Bowers conceded that acromegaly is a disease involving
12 weakness (RT 699), and that carpal tunnel symptom — damage to the nerves in the wrist — and
13 myopathy — weakness of the muscles — are common symptoms of acromegaly. (RT 706)
14 Bowers agreed that the Williams medical text, an edition of which he relied on in his testimony,
15 listed numbness of the hands as a symptom of acromegaly, and that the disease is slow
16 developing and often takes ten years after onset to diagnose. (RT 701-702) The Williams text
17 noted that nine years after the onset of acromegaly, only 11 percent of those suffering from the
18 disease exhibited the symptoms of an enlargement of head, hands, or feet. (RT 725) Bowers also
19 agreed that under his hypothesis that exogenous HGH possibly could cause the symptoms of
20 acromegaly, it might take ten years for those symptoms to appear. (RT 703) Bowers further
21 agreed that a common symptom of acromegaly is a deformation of the jawbone that, once it
22 occurs, cannot be reversed. (RT 703-704).

23 On redirect, Bowers agreed that ‘as far as definitive links between athletes using heavy
24 doses of human growth hormone and these side effects, there’s an absence of definitive studies
25 demonstrating that effect.” (RT 711-712) During the course of his testimony, Doctor Bowers did
26 not refer to a single reported instance in which the taking of exogenous HGH resulted in the
27 development of such symptoms.

28 //

1 **2. The Lay Testimony**

2 Mike Murphy, the Giants equipment manager, stated that in the later years of Mr. Bonds’
3 playing career, his hat size increased an eighth of an inch from 7 1/4 to 7 3/8. (RT 734-737)
4 Murphy also testified that the hat sizes of Willie Mays and Willie McCovey also increased when
5 they had gained weight after their retirement, and that Mr. Bonds’ larger hat size was far from the
6 largest on the team. (RT 739-740) The record establishes that Mr. Bonds was markedly heavier
7 in his later years with the Giants than when he had been during the mid-nineties. (RT 421)

8 Stevie Hoskins testified that Mr. Bonds glove size changed and that his shoe size
9 increased during the time he played for the Giants, although he gave no figure for the increases.
10 He testified that Mr. Bonds used orthotics inserted in his playing shoes later in his career (RT
11 421, 556), a fact that could readily account for any alleged increase in shoe size.

12 **B. Argument**

13 Indisputably, the existence of a scientific hypotheses is not scientific proof of the truth of
14 that hypotheses. Scientists in nineteenth century London were convinced that the cholera then
15 killing millions around the world was caused by the fetid air of the overpopulated city — a not
16 unreasonable theory — until John Snow’s landmark epidemiological study in Soho in 1849
17 proved that water-borne bacteria was the causative agent. Doctor Bowers posits that the taking
18 of exogenous HGH can cause the symptoms of acromegaly. Perhaps, but, as noted above, not a
19 single case of such cause and effect has ever been reported.

20 In his testimony, Doctor Bowers agreed that no data supporting his hypotheses existed,
21 but suggested that was due to the impossibility of running a controlled double blind study to test
22 his theory, as such a study would be ethically impermissible. (RT 663, 712) Admittedly, double-
23 blind studies are the gold standard of medical research, but the ethical hurdle described by Doctor
24 Bowers is commonly overcome by conducting studies in a different manner. As Doctor Bowers
25 noted, a researcher cannot give patients a drug to prove the hypotheses that the drug causes
26 cancer (RT 712), but that researcher can identify patients with a given cancer and determine what
27 symptoms are associated with that disease. Indeed, Bowers himself referred to a study of self-
28 identified users of anabolic steroids by Harrison Pope in the Archives of General Psychiatry that

1 amassed data on the symptoms they displayed. (RT 713-714). Likewise, a study in the Journal of
2 Clinical and Sports Medicine in 2005 analyzed the effects of anabolic steroid use relying on self-
3 reported data obtained through an internet survey.² Obviously, Doctor Bowers's hypotheses
4 regarding HGH could be tested in this manner, but no such study exists.

5 In any case, the difficulty of obtaining scientific proof of a proposition does not render
6 testimony concerning that proposition admissible under *Daubert*. *Id.* at 590. ('Proposed
7 testimony *must be supported by appropriate validation* — *i.e.*, "good grounds," based on what is
8 known.") (emphasis added) Scientifically speaking, there are no known side effects of the use of
9 exogenous HGH.

10 Furthermore, even if the use of exogenous HGH could mimic the symptoms of
11 acromegaly, based on the lay testimony in this case, no rational juror could conclude that Mr.
12 Bonds was suffering those side effects. Acromegaly causes numbness in the hands, nerve
13 damage in the wrists, muscle weakness, and a deformed jaw. At the time the government claims
14 that Mr. Bonds was taking HGH, he was engaged in the successful pursuit of major league
15 baseball's season and career home run records, feats which required tremendous strength of the
16 hands, wrists, and arms. And Bowers, the government's own expert, opined that it could take a
17 decade for any symptom of exogenous HGH use to appear, meaning Mr. Bonds would not have
18 exhibited any side effects of excess HGH during the time period in question in this case.

19 Finally, the supposed "side effects" testified to by Mr. Hoskins and Mr. Murphy consisted
20 of a very small increase — an eighth of an inch — in hat size; an undefined increase in shoe size
21 at a time when Mr. Bonds started using orthotics; and an undefined change in glove size. Yet
22 Mr. Murphy established that a slight increase in hat size can be due to weight gain as players age,
23 as was true in the case of Willie Mays and Willie McCovey. The record evidence proves Mr.
24 Bonds gained weight over the period in which his hat, glove, and shoe size slightly increased.

25 For years, the media has spread stories that Mr. Bonds had some dramatic increase in the
26

27 ² "Anabolic Steroid Use in Weightlifters and Bodybuilders, An Internet Survey of Drug
28 Utilization" by Paul J. Perry, PhD, Brian C. Lund, PharmD, MS, Michael J. Deninger, PhD, Eric
C. Kutscher, PharmD, and Justin Schneider, PharmD.

1 size of his head, hands, and feet due to steroid use. It now is clear that (a) none of these
2 supposed changes can be caused by steroid use; (b) there is no scientific basis for the conclusion
3 that such changes can be caused by exogenous HGH; and (c) there were no changes in Mr.
4 Bonds' body other than those attributable to weight gain.

5 The public has been subjected for years to what now is exposed as an urban myth. That
6 myth has no place in a federal criminal trial. All lay and expert testimony concerning the
7 purported side effects of exogenous HGH should be stricken from the record.

8 Dated: April 5, 2011

Respectfully submitted,

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11 RIORDAN & HORGAN

12
13 By /s/ Dennis P. Riordan
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15
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